

CLEAN VERSION OF AMENDMENTS

IN THE CLAIMS

Please amend claims 6 through 8, 11, 13, 25, 43, 56, 64, 85, 89, 91 and 101, as follows:

6. (Four Times Amended) A lock, comprising:

a cylinder containing a hollow recess defining a longitudinal axis;

a plug bearing a plurality of open radially oriented apertures forming an array, said plug being rotatable around said longitudinal axis while resident within said hollow recess, said plug comprising:

a first base bearing a keyway providing a first electrical conductor and an orifice spaced-apart from and separated by a mass of said plug from said keyway;

a second base separated by an axial length of said plug from said first base, said second base bearing means for supporting a cam;

an exterior surface extending between and engaging said first base and said second base;

a sidebar positioned between said first base and said second base to reciprocate between a first location with said sidebar simultaneously engaging said plug and said cylinder surrounding said plug, and a second location releasing said plug for rotation relative to the cylinder;

16 a locking device disposed within said apertures to reciprocate relative to said cylinder
17 in response to a key inserted into said keyway to accommodate reciprocation of said sidebar relative
18 to said plug and relative to said cylinder when the key while inserted into said keyway engages in
19 a selected relation with said locking means, and obstructing said reciprocation absent said selected
20 relation;

21 a second electrical conductor terminating with an electrical contact exposed to an
22 exterior of said first base through said orifice;

23 an electronic logic circuit borne by said plug, coupled to receive electrical power and
24 data signals via said first and second electrical conductors, and generating control signals in
25 dependence upon said electrical power and data signals; and

26 an electrical operator borne by said plug, disposed within one of said apertures, said
27 operator having a distal member radially traveling along an axis transverse to said longitudinal axis,
28 in dependence upon said control signals between a first position relative to said exterior surface
29 accommodating said reciprocation and a second and different position relative to said exterior
30 surface obstructing said reciprocation in concert with said locking device.

1 7. (Amended) The plug of claim 6, comprising said locking device, logic circuit and
2 electrical operator simultaneously experiencing said rotation relative to the cylinder whenever said
3 plug rotates relative to the cylinder.

1 8. (Amended) The plug of claim 6, comprising said locking device, logic circuit and

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electrical operator being wholly within the cylinder and travelling with said plug whenever said plug moves relative to the cylinder.

1 11. (Thrice Amended) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;

4 a plug rotatable around said longitudinal axis while resident within said hollow
5 recess, and a bar interposed between said shell and said plug to reciprocate generally along a radial
6 plane between a first position engaging both said shell and said plug while obstructing rotation of
7 said plug within said recess, and a second position accommodating said rotation, said plug
8 comprising:

9 a first base bearing a keyway providing a first electrical conductor and an
10 orifice spaced-apart from and separated by a mass of said plug from said keyway;

11 a second base separated by an axial length of said plug from said first base,
12 said second base bearing means for supporting a cam;

13 an exterior surface extending between and engaging said first base and said
14 second base;

15 a locking device responsive to a key inserted into said keyway to
16 accommodate reciprocation of said bar between said first position and said second position
17 when the key while inserted into said keyway engages in a selected relation with said locking
18 device and obstructing said reciprocation absent said selected relation;

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19 a second electrical conductor terminating with an electrical contact exposed
20 to an exterior of said first base through said orifice;

21 an electronic logic circuit coupled to receive electrical power and data signals
22 via said first and second electrical conductors, and generating control signals in dependence
23 upon said electrical power and data signals; and

24 an electrical operator having a distal member radially reciprocating along an
25 axis transverse to said longitudinal axis, in dependence upon said control signals between
26 a first orientation relative to said exterior surface enabling said reciprocation and a second
27 and different orientation relative to said exterior surface obstructing said reciprocation.

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13. (Twice Amended) The plug of claim 6, further comprised of said:

2 electrical operator comprising an electrical coil coaxially aligned with said distal
3 member, to move said distal member between said second position and said first position in response
4 to said control signals; and

5 distal member bearing a circumferential surface blocking said radial movement of said
6 sidebar while said distal member is in said second position, and a variation in said circumferential
7 surface accommodating said reciprocation while said distal member is in said first position.

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1 25. (Four times Amended) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;

4 a cylinder plug rotatable around said longitudinal axis while resident within said
5 hollow recess;

6 a bar interposed between said shell and said cylinder plug to reciprocate generally
7 along a radial plane between a first position engaging both said shell and said plug while obstructing
8 rotation of said cylinder plug within said recess, and a second position accommodating said rotation;

9 said cylinder plug comprising:

10 a first base and a second base separated by an axial length of said cylinder plug from
11 said first base, said second base configured to support a cam; and

12 an electrical operator borne by said cylinder plug and rotatable with said cylinder
13 plug, said electrical operator being electrically operable to respond to a control signal by
14 moving independently of said bar between one of a first orientation accommodating relative
15 movement between said bar and said cylinder plug and a second and different orientation
16 providing obstruction of said bar, and another of said first orientation and said second
17 orientation.

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1 43. (Amended) A lock, comprising:

2 a cylinder containing a hollow interior recess defining a longitudinal axis, and bearing
3 a slot within said recess; and

4 a cylinder plug rotatable from a rest orientation around said longitudinal axis while
5 resident within said hollow recess relative to said cylinder; and

6 an elongate member positioned between said cylinder and said cylinder plug, and

7 while extending into said slot, preventing rotation between said cylinder and said cylinder plug by
8 making a direct simultaneous engagement of said cylinder and said cylinder plug while said plug
9 remains in said rest orientation and, in response to a torque that is externally applied to said cylinder
10 plug and that causes said rotation of said cylinder plug within said shell, exiting said slot while
11 maintaining a second simultaneous engagement of said cylinder and said cylinder plug that
12 accommodates said rotation;

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13 said cylinder plug comprising:

14 a first base bearing an orifice spaced-apart from and separated by a mass of
15 said cylinder plug;

16 a second base separated by an axial length of said cylinder plug from said first
17 base, said second base disposed to support a cam, said mass being penetrated by a radially
18 oriented aperture;

19 an exterior surface extending between said first base and said second base;

20 a conductor having a terminal exposed to an exterior of said first base through
21 said orifice;

22 an electronic logic circuit comprising a memory storing a code, said circuit
23 being borne by said cylinder plug and coupled to receive data signals via said conductor, said
24 circuit generating control signals in dependence upon a comparison between said code and
25 information borne by said data signal;

26 an electrical operator mounted within said aperture, said operator having a
27 movable member traveling in dependence upon said control signals between a first position

28 relative to said exterior surface maintaining said simultaneous engagement by blocking
29 movement of said elongated member from said direct simultaneous engagement and a second
30 and different position relative to said exterior surface accommodating movement between
31 said plug and said cylinder; and

32 a component biasing said movable member to maintain said simultaneous
33 engagement.

1 56. (Thrice Amended) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;

4 a plug rotatable around said longitudinal axis while resident within said hollow
5 recess;

6 an elongate member interposed between said shell and said plug to travel generally
7 along a radial direction between a first position where said elongate member obstructs rotation
8 between said shell and said plug by making a direct simultaneous engagement of both said shell and
9 said plug, and in response to a torque that is externally applied to said plug and causes rotation of
10 said plug within said shell, exiting said slot and traveling to a second position while maintaining a
11 second simultaneous engagement of said shell and said plug that accommodates said rotation;

12 said plug comprising:

13 a first base perforated by an aperture, and a second base separated by an axial
14 length of said plug from said first base, said second base bearing means for supporting a

15 cam;

16 a logic circuit borne by said plug and rotatable with said plug, conveying said
17 data signal between said aperture to said logic circuit; and

18 an electrical operator responding to said control signals by moving
19 independently of said travel by said elongate member in a second direction within a plane
20 that maintains said simultaneous engagement by not aligned with said radial direction
21 between one of a first orientation obstructing said travel and relative operable movement
22 between said shell and said plug while said electrical operator is contained wholly within
23 said plug, and a second and different orientation accommodating said travel and said relative
24 operable movement between said shell and said plug, and another of said first orientation and
25 said second orientation.

1 64. (Twice Amended) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;

4 a cylinder plug rotatable around said longitudinal axis while resident within said
5 hollow recess, said cylinder plug comprising a first base and a second base separated by an axial
6 length of said cylinder plug from said first base, said second base bearing means for supporting a
7 cam;

8 a sidebar interposed between said shell and said cylinder plug to travel generally
9 along a radial plane between a first position engaging both said shell and said plug while obstructing

10 rotation of said cylinder plug within said recess, and a second position accommodating said rotation;

11 a logic circuit generating an electrical control signal in response to a comparison
12 between a code set within said logic circuit and a data signal applied to said logic circuit;

13 an electrical conductor provided by said plug, conveying said data signal to said logic
14 circuit; and
15

16 an electrical operator borne by said cylinder plug and rotatable with said plug, said
17 electrical operator being electrically operable to respond to said control signal by moving in a
18 different plane independently of said travel by said sidebar, between one of a first orientation
19 providing obstruction of said travel and a second and different orientation accommodating said
20 travel, and another of said first orientation and said second orientation;

21 said sidebar having a first portion that is positioned to be optionally blocked by
22 another component of said lock functioning independently of said electrical operator to prevent said
23 travel of said sidebar, and a second portion that is positioned to be blocked from said travel by said
24 sidebar to said second position whenever said electrical operator is within said first orientation, and
a second portion that is positioned to be optionally blocked by another component of said lock.

85. (Twice Amended) An electromechanical lock cylinder, comprising:

2 an outer shell having a bore formed therein and a cavity extending from the bore into
3 the shell;

4 a barrel disposed within the bore in the shell and being rotatable relative thereto;

5 a side bar cooperating between the shell and the barrel for selectively permitting and

6 blocking rotation of the barrel with respect to the shell, the side bar having a first portion engaging
7 the barrel and a second portion removably received in the cavity in the shell, the side bar being
8 movable relative to the barrel;

9 wherein at least one electromechanical locking member is disposed within the barrel
10 and is positionable in a barrel blocking position blocking rotation of the barrel with respect to the
11 shell, and also is positionable in a non-barrel blocking position permitting the side bar to be moved
12 relative to the cavity in the shell to rotate the barrel with respect to the shell;

13 an electronically powered drive mechanism located within the barrel and cooperating
14 with the electromechanical locking member to selectively move the locking member from the barrel
15 blocking position to the non-barrel blocking position in which the side bar moves out of the cavity
16 and engages the locking member; and

17 control means for activating the electronically powered drive mechanism in response
18 to an authorized attempt to operate the lock cylinder.

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1 89. (Amended) A rotatable lock barrel for insertion into a lock cylinder having a bore
2 formed therein, the barrel comprising:

3 an elongated, generally cylindrically shaped barrel member having an exterior configured
4 for receipt in a bore of a lock cylinder and an interior containing an electromechanical locking
5 member, the barrel member having a recess formed therein;

6 wherein the locking member is disposed in the recess of the barrel member and is
7 substantially entirely contained within the barrel member, the locking member including a groove

8 and the locking member being movable to a position in which the groove of the locking member is
9 placed in an alignment;

10 the recess in said barrel member being configured to receive at least a portion of a movable
11 side bar of a lock cylinder to permit the side bar to move into and out of engagement with the groove
12 of the locking member for selectively permitting and blocking rotation of the barrel member with
13 respect to a lock cylinder when positioned therein;

14 an electronically powered drive mechanism located within the barrel member for moving the
15 electromechanical locking member to a position in which the groove of the locking member is in
16 said alignment.

17 91. (Amended) A lock, comprising:

18 a shell containing a hollow recess defining a longitudinal axis and an interior
19 cylindrical surface;

20 a cylinder plug rotatable around said longitudinal axis while resident within said
21 hollow recess, said cylinder plug comprising a first base perforated by a keyway and a second base
22 separated by an axial length of said cylinder plug from said first base, said second base disposed to
23 support a cam;

24 a bar interposed between said shell and said cylinder plug to reciprocate generally
25 along a radial plane between a first position engaging both said shell and said plug while obstructing
26 rotation of said cylinder plug within said recess, and a second position accommodating said rotation

27 when a torque is externally applied to said keyway to rotate said cylinder plug within said shell;
28 a locking mechanism borne by and rotating with said cylinder plug, said locking
29 mechanism being interposed between said cylinder plug and said bar, and exhibiting a first
30 disposition hindering said reciprocation and, in response to insertion of a key in physical
31 conformance to said locking mechanism, exhibiting a second and different disposition
32 accommodating said reciprocation; and
33 an electrical operator borne by said cylinder plug and rotatable with said cylinder
34 plug, said electrical operator being electrically operable to respond to a control signal by moving
35 independently of said bar between a first orientation providing obstruction of said reciprocation by
36 said bar and a second and different orientation removing said obstruction.

101. (Amended) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface;

4 a cylinder plug rotatable around said longitudinal axis while resident within said
5 hollow recess, said cylinder plug comprising:

6 a first base and a second base separated by a mass and an axial length of said cylinder
7 plug from said first base, said second base being configured to support a cam, said mass
8 comprising a main body exhibiting a major exterior circumferential surface and a cylindrical
9 sector exhibiting a lesser and minor exterior circumferential surface supplementing said main

10 body to endow said cylinder plug with a substantially cylindrical exterior shape that is
11 removably insertable within said hollow recess;

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14 an electrical operator encased within said cylindrical sector and rotatable with said
15 cylinder plug, said electrical operator being electrically operable to respond to a control
16 signal by moving between one of a first orientation obstructing rotation of said cylinder plug
17 relative to said shell and a second and different orientation accommodating said rotation, and
18 another of said first orientation and said second orientation; and

19 a logic circuit encased within said cylindrical sector generating said control signal in
response to a comparison between a code set within said logic circuit and a data signal
applied to said logic circuit.

Please add new claims 106 through 120, as follows.

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2 *P13* --106. The lock of claim 14, further comprising said bar engaging both said shell and said
plug during said movement between said plug and said cylinder.

1 --107. The lock of claim 25, further comprising said bar engaging both said shell and said
2 cylinder plug during said rotation.

3 --108. The lock of claim 46, further comprising said bar engaging both said shell and said
4 cylinder plug during said rotation.

1 --109. The lock of claim 64, further comprising said sidebar engaging both said shell and
2 said cylinder plug during said rotation.

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1 --110. The lock of claim 65, further comprising said bar engaging both said shell and said
2 cylinder plug during said rotation.

1 --111. The lock of claim 70, further comprising said bar engaging both said shell and said
2 cylinder plug during said rotation.

1 --112. The lock of claim 75, further comprising said bar engaging both said shell and said
2 cylinder plug during said rotation.

1 --113. The lock of claim 76, further comprising said bar engaging both said shell and said
2 cylinder plug during said rotation.

1 --114. The lock of claim 77, further comprising said bar engaging both said shell and said
2 cylinder plug during said rotation.

1 --115. The lock of claim 85, further comprising said side bar engaging both said shell and

2 said barrel during said rotation.

1 --116. The lock of claim 91, further comprising said bar engaging both said shell and said
2 cylinder plug during said rotation.

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1 --117. The lock of claim 92, further comprising said bar engaging both said shell and said
2 cylinder plug during said rotation.

1 --118. A lock, comprising:
2 a shell containing a hollow recess defining a longitudinal axis and an interior
3 cylindrical surface bearing a slot,
4 a cylinder plug rotatable around said longitudinal axis while resident within said
5 hollow recess;
6 a bar borne by said cylinder plug, said bar having a distal edge extending in a radial
7 direction to said longitudinal axis, and into said slot to form a simultaneous engagement of said shell
8 and said cylinder plug while said lock is in a locked state, and said distal edge maintaining a
9 simultaneous engagement of said shell and said cylinder plug after a torque that is externally applied
10 to said cylinder plug causes rotation of said cylinder plug within said shell;

11 said cylinder plug comprising:

12 a first base and a second base separated by an axial length of said cylinder

13 plug from said first base, said second base being configured to support a cam;
14 an electronic logic circuit comprising a memory storing a code, said circuit
15 generating control signals in dependence upon a comparison between said code and
16 information borne by a data signal received by said cylinder plug from an external source;
and
17 an electrical operator borne by said cylinder plug and rotatable with said
18 cylinder plug, said electrical operator comprising an electrical coil and a movable member
19 traveling in response to said coil, independently of said bar and in dependence upon said
20 control signals, between a first position relative to said exterior surface maintaining said
21 simultaneous engagement by blocking movement by said bar, and a second and different
22 position relative to said exterior surface accommodating movement between said shell and
23 said cylinder plug.
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1 --119. The lock cylinder of claim 85, in which said side bar moves out of the cavity and
2 engages the locking member to rotate the barrel and operate the lock.

1 --120. A rotatable lock barrel for insertion into a lock cylinder having a bore formed therein,
2 the barrel comprising:

3 an elongated, generally cylindrically shaped barrel member having an exterior configured
4 for receipt in a bore of a lock cylinder and an interior containing a plurality of electromechanical

5 locking members, the barrel member having a recess formed therein;

6 wherein the locking members are disposed in the recess of the barrel member and are
7 substantially entirely contained within the barrel member, each of the locking members including
8 a groove and the locking members being movable to a position in which the grooves of the locking
9 members are aligned;

10 the recess in said barrel member being configured to receive at least a portion of a movable
11 side bar of a lock cylinder to permit the side bar to move into and out of engagement with the
12 grooves of the locking members for selectively permitting and blocking rotation of the barrel
13 member with respect to a lock cylinder when positioned therein;

14 an electronically powered drive mechanism located within the barrel member for moving the
15 electromechanical locking members to a position in which the grooves of the locking members are
16 aligned.--
